CLAIM AMENDMENTS

Claims 1-52: (canceled)

Claim 53: (withdrawn) A transdermal formulation for improving memory and cognitive function comprising:

an inert carrier having from about 0.01 % w/w to about 20% w/w of huperzine admixed therewith, and including a permeation enhancer selected from the group consisting of: fatty acids, fatty acid esters, fatty alcohols, amides, pyrrolidones, glycerol triesters, terpenes, their salts, and mixtures thereof, wherein said formulation provides a huperzine blood plasma level of from about 0.1 ng/ml to about 30 ng/ml, upon administration to a subject.

Claim 54: (withdrawn) The transdermal formulation of claim 53, wherein the blood plasma level attained is from about 0.5 to about 15 ng/ml.

Claim 55: (withdrawn) The transdermal formulation of claim 53, wherein the blood plasma level is achieved within about 0.5 to about 48 hours after administration of the formulation.

Claim 56: (withdrawn) The transdermal formulation of claim 53, wherein a single dose is sufficient to sustain the huperzine blood plasma level for a duration of at least about 3 days.

Claim 57: (withdrawn) The transdermal formulation of claim 53, wherein a single dosage is sufficient to sustain the huperzine blood plasma level for a duration at least about 7 days.

Claim 58: (withdrawn) The transdermal formulation of claim 53, wherein the huperzine is a member selected from the group consisting of huperzine A, huperzine B, huperzine X, and salts, analogs, derivatives, prodrugs, and mixtures thereof.

Claim 59: (withdrawn) The transdermal formulation of claim 58, wherein the huperzine is huperzine A.

Claim 60: (withdrawn) The transdermal formulation of claim 58, wherein the huperzine is huperzine B.

Claim 61: (withdrawn) The transdermal formulation of claim 58, wherein the huperzine is huperzine X.

Claim 62: (withdrawn) The transdermal formulation of claim 53, wherein the inert carrier comprises a pressure sensitive adhesive, and the formulation is an adhesive matrix patch.

Claim 63: (withdrawn) The transdermal formulation of claim 53, wherein the inert carrier is a liquid reservoir, and the formulation is a liquid reservoir system.

Claim 64: (withdrawn) The transdermal formulation of claim 53, wherein the formulation is a topical formulation.

Claim 65: (withdrawn) The transdermal formulation of claim 53, wherein the permeation enhancer is selected from the group consisting of: a terpene compound, lauromide DEA, glycerol monooleate, sorbitan monooleate, lauryl alcohol, triacetin, cineole, oleic acid, and mixtures thereof.

Claim 66: (withdrawn) The transdermal formulation of claim 53, wherein said huperzine further comprises a huperzine hybrid compound.

Claim 67: (withdrawn) The transdermal formulation of claim 66, wherein said huperzine hybrid compound is a huperzine-tacrine hybrid.

Claim 68: (withdrawn) The transdermal formulation of claim 53, further comprising a hormone admixed with the carrier.

Claim 69: (withdrawn) The transdermal formulation of claim 53, wherein the hormone is a member selected from the group consisting of estrogens, androgens, melatonin, seratonin, DHEA, phosphatidyl serine, and mixtures thereof.

Claim 70: (withdrawn) The transdermal formulation of claim 69, wherein the hormone is estrogen.

Claim 71: (withdrawn) The transdermal formulation of claim 53, further comprising a treatment agent selected from the group consisting of antipsychotics, anxiolytics, antidepressants, and mixtures thereof.

Claim 72: (withdrawn) The transdermal formulation of claim 71, wherein the treatment agent is an antipsychotic.

Claim 73: (withdrawn) The transdermal formulation of claim 71, wherein the treatment agent is an anxiolytic.

Claim 74: (withdrawn) The transdermal formulation of claim 71, wherein the treatment agent is an antidepressant.

Claim 75: (withdrawn) The transdermal formulation of claim 53, further including a positive health benefit imparting substance selected from the group consisting of: vitamins, amino acids, anti-oxidants, and mixtures thereof.

Claim 76: (withdrawn) The transdermal formulation of claim 75, wherein the positive health benefit imparting substance is a vitamin.

Claim 78: (withdrawn) The transdermal formulation of claim 75, wherein the positive health benefit imparting substance is an amino acid.

Claim 79: (withdrawn) The transdermal formulation of claim 75, wherein the positive health benefit imparting substance is an anti-oxidant.

Claim 80: (withdrawn) A transdermal formulation for improving memory and cognitive function consisting essentially of:

a mixture of an inert carrier and huperzine in an amount of from about 0. 01% w/w to about 20% w/w, which provides a huperzine blood plasma level of from about 0.1 to about 30 ng/ml upon administration to a subject.

Claim 81: (previously presented) A method of improving memory and cognitive function in a subject, comprising:

transdermally administering huperzine to the subject from a transdermal matrix patch that includes an adhesive matrix with an acrylate polymer including homopolymers, copolymers, or terpolymers, or rubber-based pressure sensitive adhesive including copolymers and a fatty acid ester of lactic acid as a permeation enhancer, said matrix patch excluding Azone, in order to provide a huperzine blood plasma level of from about 0.1 to about 30 ng/ml for a duration of at least about 3 days from a single transdermal administration.

Claim 82: (previously presented) The method of claim 81, wherein the huperzine is a member selected from the group consisting of huperzine A, huperzine B, huperzine X, and salts, analogs, prodrugs, and mixtures thereof.

Claim 83: (previously presented) The method of claim 81, wherein the blood plasma level is from about 0.5 to about 15 ng/ml.

Claim 84: (previously presented) The method of claim 81, wherein the huperzine blood plasma level is attained within about 0.5 to about 48 hours after initiation of the huperzine administration.

Claim 85: (canceled)

Claim 86: (previously presented) The method of claim 81, wherein the huperzine blood plasma level is sustained for a duration of at least 7 days from a single transdermal administration.

Claim 87: (withdrawn) A method of improving memory and cognitive function in a subject, comprising:

transdermally administering a huperzine formulation with a hormone to the subject which provides a huperzine blood plasma level of from about 0.1 to about 30 ng/ml.

Claim 88: (withdrawn) The method of claim 81, wherein the hormone is a member selected from the group consisting of estrogens, androgens, melatonin, seratonin, DHEA, phosphatidyl serine, and mixtures thereof.

Claim 89: (withdrawn) The method of claim 88, wherein the hormone is estrogen.

Claim 90: (withdrawn) A method of improving memory and cognitive function in a subject, comprising:

transdermally administering a huperzine formulation with a treatment agent selected from the group consisting of antipsychotics, anxiolytics, antidepressants, and mixtures thereof, to the subject which provides a huperzine blood plasma level of from about 0.1 to about 30 ng/ml.

Claim 91: (withdrawn) The method of claim 90, wherein the treatment agent is an antipsychotic.

Claim 92: (withdrawn) The method of claim 90, wherein the treatment agent is an anxiolytic.

Claim 93: (withdrawn) The method of claim 90, wherein the treatment agent is an antidepressant.

Claim 94: (withdrawn) The method of claim 90, further comprising co-administering to the subject a positive health benefit imparting substance selected from the group consisting of: vitamins, amino acids, anti-oxidants, and mixtures thereof.

Claim 95: (withdrawn) The method of claim 94, wherein the positive health benefit imparting substance is a vitamin.

Claim 96: (withdrawn) The method of claim 94, wherein the positive health benefit imparting substance is an amino acid.

Claim 97: (withdrawn) The method of claim 94, wherein the positive health benefit imparting substance is an anti-oxidant.

Claim 98: (canceled).

Claim 99: (canceled).

Claim 100: (canceled).

Claim 101: (canceled).

Claim 102: (previously presented) The method of claim 81, wherein the transdermal patch comprises an acrylic adhesive matrix patch.

Claim 103: (new) The method of claim 81, wherein the huperzine blood plasma level is attained within about 0.5 to about 10 hours after initiation of the huperzine administration.